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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,744

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EXAMINER

GREENE, JASON M

ART UNIT

PAPER NUMBER

1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,744	Applicant(s) SINGH ET AL.	
	Examiner Jason M. Greene	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/18/07</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claims

1. Claim 7 recites the phrase "the holes" in line 2, but there is insufficient antecedent basis for this limitation in the claim. The Examiner suggests Applicants either rewrite the phrase as "the pathway" or amend the claim to depend from claim 5 or claim 6 and rewrite the phrase as "the ducts" to improve the clarity and precision of the claim language.

2. Claim 11 recites the phrase "the metallic members" in lines 1-2, but there is insufficient antecedent basis for this limitation in the claim. The Examiner suggests Applicants either rewrite the phrase as "the electrically conductive members" to improve the clarity and precision of the claim language.

Claim Objections

3. Claim 23 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Claim 23 has been treated as though it depends from claim 1 for examination.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 7, 10, 12-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Knauer (US 3,520,110).

Knauer discloses a gas port assembly (2,20) capable of supplying or removing one or more gases to a powered electrode in a plasma processing chamber, comprising a number of dielectric members (10,30) and a number of electrically conductive members (8,34), the members being arranged in a stack of alternating dielectric and electrically conductive members, and wherein each member comprises at least one gas pathway for the passage of the gases, such that when stacked the gas pathways are in communication with each other and the gases are able to pass between an outer side of the stack and a chamber side of the stack, the members acting as a capacitive divider to reduce high voltages within the assembly, wherein the assembly is arranged such that the peak operating voltage is greater than 2 kV (see Fig. 1.), wherein at least three dielectric members and at least electrically conductive metallic members are provided, wherein the gas pathways relative to one another such that the gases follow a pre-defined path through the assembly, wherein the width to height ratio of the pathways

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through the dielectric members is about 1 (see Fig. 2), wherein the electrically conductive members are formed as gauzes or meshes (steel wool) arranged to act as particle filters, wherein the members are adapted to inherently reduce discharges when the electrode(s) are operated at radio frequencies (including about 13.56 MHz), the power is supplied in the range of 20-5000 W, and the pressure within the chamber is between 5 and 1000 mTorr, wherein the gas port is adapted for flow rates between 10 and 5000 sccm, wherein at least one surface of an end dielectric member within the stack comprises a recess for partially accommodating one or more of the electrically conductive members so as to reduce fringe electric fields (see Fig. 2) , and further comprising an insulator (26 or 32 in Fig. 3) for electrically insulating the members of the assembly, including from the electrode, wherein the insulator and one or more of the dielectric members are formed as an integral unit, and wherein the assembly further comprises a coupling device (the end portions) such that the assembly can be removably coupled to the chamber in Figs. 1-3 and col. 2, line 21 to col. 3, line 57.

With regard to the gas port assembly being for supplying or removing one or more gases to a powered electrode in a plasma processing chamber, the chamber having at least one electrode to which an alternating electrical potential is applied in use, intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530 (CCPA 1971).

Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in determining patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666 (PTO Board of Appeals 1969).

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Inclusion of the material worked upon by a structure being claimed does not impart patentability to the claims, *In re Otto et al.*, 136 USPQ 458 (CCPA 1963). A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of that claimed, *Ex parte Masham*, 2 USPQ 2d 1647 (PTO Board of Appeals 1987).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knauer (US 3,520,110).

Knauer does not teach a gas port assembly kit comprising a gas port according to claim 19 and one or more additional electrically conductive and/or dielectric members for selective use with the gas port assembly, but one of ordinary skill in the art at the time the invention was made would have recognized that replacement members could be included with the gas port assembly for use in the event that one of the members in

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the assembly is damaged or otherwise requires replacement, such as due to excessive clogging with captured particulates.

8. Claims 5, 6, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knauer (US 3,520,110) in view of Kawakami et al. (US 5,542,559).

Knauer does not teach the dielectric members being arranged as discs, each having a number of ducts within them so as to provide the gas pathways, wherein the ducts are positioned at locations which are dissimilar to those within an adjacent disc in the stack, or the dielectric members being formed from a plastic or ceramic material and the electrically conductive members being formed from a corrosion resistant alloy.

Kawakami et al. discloses a similar gas port assembly wherein the dielectric members (6,7) are arranged as discs, each having a number of ducts (62,72) within them so as to provide the gas pathways, wherein the ducts are positioned at locations which are dissimilar to those within an adjacent disc in the stack, wherein the diameter of each duct is 1 mm, and wherein the discs are formed of PTFE and electrically conductive members formed from a corrosion resistant alloy (aluminum) in Figs. 2-5 and col. 5, line 66 to col. 6, line 26.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the dielectric discs of Kawakami et al. into the assembly of Knauer in that such are a known alternate dielectric member in the art of electrically insulated gas ports.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the PTFE and aluminum materials of Kawakami et al. into the assembly of Knauer in that such are a known alternate electrically insulating and conducting material for forming dielectric and conductive members in the art.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. (US 5,542,559) in view of Knauer (US 3,520,110).

Kawakami et al. discloses a plasma processing apparatus comprising a chamber (2) to which one or more gases are introduced when in use, the gases being used to generate a plasma within the chamber, at least one electrode (3) to which an alternating electrical potential is applied in use so as to generate the plasma, one or more gas port assemblies (5) for supplying or removing gases to or from the chamber, and at least one insulator (4) for electrically insulating the one or more gas port assemblies from the electrodes in Figs. 1-5 and col. 5, line 1 to col. 9, line 22.

Kawakami et al. does not teach the gas port assembly having the structure recited in claim 1. As best shown in Fig. 2, the gas port of Kawakami et al. has a plurality of dielectric members (6,7) arranged adjacent to one another, and a plurality of electrically conductive members (8) arranged adjacent to one another. Kawakami et al. does not teach the alternately arranged dielectric and electrically conductive members required by claim 1 such the members act as a capacitive divider.

As note above, Knauer teaches the recited gas port assembly wherein the dielectric and conductive members are arranged alternatively in Figs. 1-3 and col. 1, line 11 to col. 3, line 57

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the gas port of Knauer into the apparatus of Kawakami et al. in that such is an alternate electrically insulating gas port in the art of gas feed systems where electrical isolation is required.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Persing et al. and Wilcoxson et al. references disclose similar systems.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene
Primary Examiner
Art Unit 1797

/Jason M. Greene/
4/11/09

jmg
April 11, 2009